UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

CORE WIRELESS LICENSING S.A.R.L.,	§	**Case No. 2:14-cv-0911-JRG-RSP (lead)**
v.	§	
LG ELECTRONICS, INC., AND LG ELECTRONICS MOBILECOMM U.S.A., INC.	§	**Case No. 2:14-cv-0912-JRG-RSP (consolidated)**

MEMORANDUM OPINION AND ORDER REGARDING THE GROUP 1 PATENTS

On September 2, 2015, the Court held a hearing to determine the construction of disputed terms in five United States Patents: Patent Nos. 5,946,634 ("the '634 Patent"), 6,477,151 ("the '151 Patent"), 6,633,536 ("the '536 Patent"), 7,782,818 ("the '818 Patent"), and RE44,828 ("the '828 Patent") (collectively the "Asserted Patents"). The Court, having considered the parties' claim construction briefing (Dkt. Nos. 123, 138 and 149)[1] and their arguments at the hearing, issues this Memorandum Opinion and Order Regarding Group 1 Patents construing the disputed terms.

BACKGROUND AND THE ASSERTED PATENTS

Core Wireless Licensing S.A.R.L. ("Core") brings two actions against LG Electronics, Inc. and LG Electronics Mobilecomm U.S.A., Inc. (collectively "Defendants").[2] The disputed terms in the two actions were grouped into three consolidated patent groupings for claim

[1] Citations to docket numbers reference the docket numbers in Case No. 2:14-cv-0911.

[2] Originally four actions were consolidated for claim construction purposes. The other two actions were Core Wireless Licensing S.A.R.L. v. Apple Inc., Case No. 6:14-cv-751 and Core Wireless Licensing S.A.R.L. v. Apple Inc., Case No. 6:14-cv-752. The LG Defendants and Apple filed consolidated claim construction briefs. After the briefing, but prior to the claim construction hearing, the Apple actions were transferred out of this district.

construction briefing and argument purposes. The patents in Group 1 are alleged by Core to be standard-essential patents. This Memorandum Opinion and Order relates to the Group 1 patents.

The Asserted Patents relate to cellular communication systems. In general, the '634 Patent relates to a technique for a mobile terminal to communicate with multiple, incompatible backbone networks. For example, the '634 Patent abstract recites:

> A mobile terminal (10) has multiple alternative protocol stacks (151, 152 . . .) which correspond to the protocols used on multiple backbone networks (30a-30c) to which the mobile terminal can obtain access through one or more radio access networks (20a-20c) with which it is in communication using a common, predetermined low level signalling protocol. The radio access network (20) broadcasts signals (102) indicating the types of backbone network to which it is connected (and thereby the protocols they employ), and on encountering a signal indicating a new type of backbone network, a mobile terminal 10 may download a new protocol stack from the radio access network.

'634 Patent Abstract.

In general, the '151 Patent relates to accounting for delays that occur in communications between a mobile station and a base station that result from the time it takes a signal to be transmitted from the mobile station to the base station. For example, the '151 Patent abstract recites:

> A method of synchronizing radio signal transmission slots at a mobile station to radio signal reception slots at a base station subsystem to account for a propagation delay between the mobile station and the base station subsystem. The method is applicable to a GPRS packet switched cellular telephone network in which a downlink channel is defined for transmitting user data from the base station subsystem to the mobile station and an uplink channel is defined for transmitting user data from the mobile station to the base station subsystem. These channels comprise dynamically allocated time slots in a time division multiple access frame. An updated timing advance value indicative of the radio propagation delay between the mobile station and the base station subsystem at a given time is calculated at the base station once every 8 multiframes. The timing advance value is identified to the mobile station by a timing advance index previously allocated to the mobile station. The mobile station uses the timing advance value to advance transmission slots at the mobile station for both the uplink and downlink channels so that transmitted data is received at the base station subsystem in the allocated base station subsystem reception slots.

’151 Patent Abstract.

In general, the ’536 Patent relates to sending both signalling[3] data and user data (such as speech data) on the user data channel. Frame stealing techniques are used to insert signalling data amongst the user data of the user data channel. For example, the ’536 Patent abstract recites:

> A method and a transmitter (100) and a receiver (102) for transmitting messages (114) in a digital telecommunications system. The information (104) to be sent is encoded in an information encoder (106) of the transmitter (100) into frames that are transmitted via a transmission path (108) to the receiver (102). A good state and a bad state have been defined for the frames, and a bit pattern corresponding to each message (114) has been defined. The messages (114) are encoded with a message encoder (116) of the transmitter (100) and transmitted to the receiver (102). The messages (114) are transmitted together with the information (104) via a common transmission path (108), inserting the bit pattern corresponding to the message (114) in the frame, forming the frame corresponding to the time of transmitting the message (114) as bad, and in short sequences, preferably only one frame at a time. The messages thus transmitted can be received together with the information (104) via a common transmission path (108) simply by detecting a bad frame that additionally contains a bit pattern deviating from the bit pattern corresponding to the message in a few bits at most. The bad frames corresponding to the time of message transmission are replaced with a preceding good frame.

’536 Patent Abstract.

In general, the ’818 Patent relates to techniques for providing multiple core networks for each routing area. For example, the ’818 Patent abstract recites:

> The invention proposes a system and method for providing a connection in a communication network which comprises several network elements and is adapted to route a connection via a first network element such as a radio network controller and one or more of alternatively selectable second network elements such as serving nodes. The network comprises a network element which stores a list of selectable second network elements. The list is accessed using an identifier identifying a routing or location area or a desired second network element. The list can be stored in a DNS server which returns to an inquiring network element such as a radio network controller, e.g. IP addresses of serving nodes capable of serving a routing or location area of a connection originating or terminating network element. The connection originating or terminating network element may

[3] The various asserted patents and claim terms use both “signalling” and “signaling.” The usage herein generally conforms to the usage in the particular patent or claim term at issue.

> also be adapted to send an identifier identifying a specific network element such as an SGSN to which it desires to be connected.

'818 Patent Abstract.

In general, the '828 Patent relates to techniques for selecting a channel coding scheme based upon the quality of service required for a particular intended use (for example video verse email) for the cellular connection. For example, the '828 Patent abstract recites:

> A method for choosing channel coding and/or interleaving scheme is applied in a communication connection over a radio interface between a terminal and a base station of a cellular packet radio system. A certain decision-making device allocates channel coding and/or interleaving schemes to communication connections. A request message is communicated (to the decision-making device, indicating a certain set of Quality of Service parameters associated with a certain first communication connection. The set of Quality of Service parameters is mapped to a certain first channel coding and/or interleaving scheme as a part of the channel coding and/or interleaving scheme allocation made by the decision-making device. The first channel coding and/or interleaving scheme is communicated to the base station and the terminal for them to apply said first channel coding and/or interleaving scheme in the first communication connection.

'828 Patent Abstract.

APPLICABLE LAW

1. Claim Construction

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *Id.* at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at

861. The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("Generally speaking, we indulge a 'heavy presumption' that a claim term carries its ordinary and customary meaning.")

The claims themselves provide substantial guidance in determining the ordinary meaning of claim terms. *Phillips*, 415 F.3d at 1314. "The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). First, a term's context in the asserted claim can be instructive. *Id*. Other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent. *Phillips*, 415 F.3d at 1314. Differences among the claim terms can also assist in understanding a term's meaning. *Id*. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id*. at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id*. (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id*. (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). But, "'[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.'" *Comark*

Commc'ns, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent. *Id.* at 1317. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence can also be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id*. at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id*. Generally, extrinsic

evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id*.

2. Departing from the Ordinary Meaning

There are "only two exceptions to [the] general rule"[4] that claim terms are construed according to their plain and ordinary meaning: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal."). The standards for finding lexicography or disavowal are "exacting." *Id.*

To act as his own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term," and "clearly express an intent to define the term." *Id.* (quoting *Thorner*, 669 F.3d at 1365); *see also Renishaw*, 158 F.3d at 1249. The patentee's lexicography must appear "with reasonable clarity, deliberateness, and precision." *Id.*

To disavow or disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or

[4] Some cases have characterized other principles of claim construction as "exceptions" to the general rule, such as the statutory requirement that a means-plus-function term is construed to cover the corresponding structure disclosed in the specification. *See, e.g.*, *CCS Fitness*, 288 F.3d at 1367.

restriction, representing a clear disavowal of claim scope.") "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

3. Means-Plus-Function Limitations

The parties' disputed terms include alleged means-plus-function limitations. Where a claim limitation is expressed in "means-plus-function" language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112, ¶ 6. *Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, 35 U.S.C. § 112, ¶ 6 mandates that "such a claim limitation 'be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.'" *Id.* (citing 35 U.S.C. § 112, ¶ 6). When faced with a means-plus-function limitation, courts "must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitation]." *Id.*

Construing a means-plus-function limitation involves multiple steps. "The first step . . . is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). "[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id.* A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id.* The focus of the "corresponding structure" inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is "clearly linked or associated with the [recited] function." *Id.* The corresponding structure "must include all structure that actually performs the recited function." *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir.

2005). However, § 112 does not permit "incorporation of structure from the written description beyond that necessary to perform the claimed function." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

For mean-plus-function limitations implemented by a programmed general purpose computer or microprocessor, the corresponding structure described in the patent specification must include an algorithm for performing the function. *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The corresponding structure is not a general purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

4. Claim Indefiniteness

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. "[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). A party challenging the definiteness of a claim must show it is invalid by clear and convincing evidence. *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1345 (Fed. Cir. 2007).

The definiteness standard of 35 U.S.C. § 112, ¶ 2 requires that:

> [A] patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable. The standard we adopt accords with opinions of this Court stating that "the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter."

Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2129–30 (2014) (internal citations omitted).

AGREED TERMS

The parties agreed to the following constructions prior to the oral hearing. Dkt. No. 161-1 at 1-2.

'818 Patent Term	Agreed Upon Construction
radio network controller[5] (claims 30, 41)	Plain and ordinary meaning / no construction necessary

'634 Patent Terms	Agreed Upon Construction
low level signal format protocol (claims 1, 20) lower level protocols (claim 1) low level signalling protocols (claims 23, 25)	protocol[s] for performing radio interface dependent parts of the signal processing, signaling and control protocols, corresponding to layers 1 and 2 (in terms of the OSI reference model) and the RR sublayer

'536 Patent Terms	Agreed Upon Construction
transmitting means for transmitting the encoded user information and the messages via a transmission channel (claim 17)	**Function:** transmitting the encoded user information and the messages via a transmission channel **Structure:** antenna on mobile phone labeled "MS" in Fig. 1 and "TX" in Fig. 2 and Fig. 4, and as described in 2:7-8 and 8:41-43 of the '536 specification, and statutory equivalents thereof
receiving means for receiving a signal via a transmission channel in frames (claim 19)	**Function:** receiving a signal via a transmission channel in frames **Structure:** Antenna on mobile phone labeled "MS" in Fig. 1 and "RX" in Fig. 2 and Fig. 4, and as described in 2:7-8 and 8:43-45 of the '536 specification, and statutory equivalents thereof

[5] Agreement as to this term was provided in a separate September 1, 2015 notice to the Court.

TERMS NOT BEFORE THE COURT

After the September 2, 2015 hearing, Core provided an updated notice of asserted claims. As a result of such notice, certain terms that were subject to briefing and oral hearing are no longer contained in any asserted claim. The Group 1 terms that are no longer at issue are Term Numbers 7, 23, 24 and 26.[6] Dkt. No. 178 at 3. This Order does not address those terms.

Another set of terms had only been requested by Apple for construction. These terms are Term Numbers 3, 8, 9, 10, 14, 22, 27, and 28. These terms were not identified in the Local Patent Rule 4-3 Joint Claim Construction and Prehearing Statement in the *Core Wireless v. LG* actions. Dkt. No. 74-1. Similarly, in the Defendants' consolidated claim construction brief it was indicated that LG had "no proposal" for these terms in the Appendix A claim chart of that brief. Dkt. No. 138-13 at 3-14. Likewise, the body of the brief did not indicate that LG was now seeking construction of these terms. Further, in the Local Patent Rule 4-5(d) chart submitted after the briefing on August 27, 2015, for each of these terms Defendants indicated under "LG's Construction:" "Not identified for construction in the CW/LG case." Dkt. No. 161-1 at 8-62. Based upon the rules of this Court, Term Numbers 3, 8, 9, 10, 14, 22, 27, and 28 have not been properly raised for construction in the LG actions. This Order does not address those terms.

[6] As used herein, the term numbers reference the term numbers as used in the parties' claim construction briefing.

DISPUTED TERMS

I. '818 Patent

1. "routing area" - Claims 30, 31, 34, 43 (Term 1)

Core Wireless's Construction	Defendants' Construction
The area where a mobile station is registered in the serving node and where eventually the serving node pages the mobile station to establish downlink connection.	The area where a mobile station is registered in the serving node (e.g. SGSN or MSC/VLR), and where eventually the serving node pages the mobile station to establish downlink connection.

The sole dispute between the parties is whether the examples "(e.g. SGSN or MSC/VLR)" should be included in the construction.

Positions of the Parties

Core asserts that both its and Defendants' constructions are nearly verbatim from a portion of the specification:

> Note that Routing area (RA) is a standard term used in conjunction with GPRS, while GSM and UMTS Circuit Switched systems use the term Location Area (LA). In both case, the area is referring to the area where a mobile station is registered in the serving node (e.g. SGSN or MSC/VLR), and where eventually the serving node pages the mobile station to establish downlink connection. In this application, the term area will be used to refer to location area and/or routing area.

'818 Patent 1:40-48. Core notes that Defendants' construction includes the examples "e.g. SGSN…." Core asserts that these terms are highly technical, are examples only, and may confuse the jury.

Defendants assert that there is no basis for Core to rely on the specification definition but omit the parenthetical "(e.g. SGSN or MSC/VLR)" included in that definition. Dkt. No. 138 at

24. At the oral hearing, Defendants argued that these examples would help an expert explain the term to the jury.

Analysis

The parties have not identified a dispute that establishes one of ordinary skill in the art would apply a different meaning to the parties' two constructions. The passage cited by both Core and Defendants makes clear that SGSN and MSC/VLR are merely examples: "(e.g. SGSN or MSC/VLR)." '818 Patent 1:44-45. Inclusion of these examples in the construction runs the risk of jury or expert confusion by implying the terms are limited to such examples. Further, the inclusion of acronyms would require further clarification as to what the acronym means and what underlying technology the acronym represents.

The Court construes "routing area" to mean "the area where a mobile station is registered in the serving node and where eventually the serving node pages the mobile station to establish downlink connection."

II. '634 Patent

1. "formatting device (13) for applying a low level signal format protocol to a signal for transmission over said wireless interface" - Claims 1, 20 (Term 4)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary. This element is not governed by 35 U.S.C. § 112(6). To the extent the Court finds this element to be governed by 35 U.S.C. § 112(6), Core Wireless proposes the following: **Alternative Function:** applying low level signal format protocol to a signal for	This element is governed by 35 U.S.C. § 112(6). Indefinite for failure to disclose a supporting structure.

Core Wireless's Construction	Defendants' Construction
transmission over said wireless interface **Alternative Structure:** a digital signal processor device as shown in Figure 2 and described in the patent at 4:4-6 (through "…structure)"), 4:40 (starting "B-ISDN....")-46, 5:25-29, 7:66-8:8, 8:13-17 and statutory equivalents thereof	

The parties dispute whether or not the "formatting device" is a means-plus-function term, and if a means-plus-function term, whether sufficient structure is disclosed.

Positions of the Parties

Core asserts that the term "formatting device" needs no construction, because a jury would understand each word. Core asserts that the absence of the word "means" creates a presumption that the term is not governed by §112(6). Core argues that in the context of the specification, a person of skill in the art would understand "formatting device" to denote a DSP (digital signal processor) or a baseband processor. Dkt. No. 123 at 9-10 (citing Striegel Decl.). Core notes that the claim includes the number 13: "formatting device (**13**)". '634 Patent Claim 1 (emphasis in original). Core observes that, in the specification, numeral 13 corresponds to the DSP of Figure 2.

Core asserts that even if the term is subject to §112(6), the term is definite. Core points out that the patent discloses a digital signal processor formatting the signal "for example, into packets, ATM cells or a TDM bit stream and into a frame structure." '634 Patent 4:4-6. Core provides two responses to Defendants' argument that the specification does not disclose an algorithm. First, Core asserts that an algorithm is not required because a DSP is not a general purpose processor but rather a specific purpose processor. Dkt. No. 123 at 10, n. 44 (citing cases that did not require an algorithm for specific purpose processors, including a DSP). Second, Core

argues that an algorithm is disclosed. Core notes that a flow chart is not required by law, rather a prose description of the algorithm is sufficient. The parties have agreed on a definition of "low level" that includes "protocols," and the patent discloses known protocols and program languages. Core asserts that one skilled in the art would know how to implement these protocols on a DSP or baseband processor. *Id*. at 10-11 (citing Striegel Decl.).

According to Defendants, *Williamson* held that "device" is a "nonce word" that is "tantamount to using the word 'means.'" *Williamson v. Citrix Online, LLC*, __ F.3d __, No. 2013-1130, 2015 WL 3687459 at *8 (Fed. Cir. June 16, 2015) (*en banc*). Defendants also cite to *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014) for the proposition that "device" is a "non-structural, 'nonce' word." Defendants argue that the larger phrase "formatting device" also imparts no structure just as "distributed learning control" was insufficient to impart structure to the term "module" in *Williamson*, and "program recognition" and "program loading" imparted no structure to "device" in *Robert Bosch*. Dkt. No. 138 at 3 (noting that *Robert Bosch* found the additional words merely identified functions for the device to perform).

Defendants take the position that a DSP is a general purpose processor that can be programmed to perform a wide variety of tasks. *Id*. at 4 (citing two district court cases finding a DSP to be a general purpose processor requiring an algorithm). Defendants assert that the DSP cases, cited by Core, dealt with different structures ("site controller," "video image signal transmitter," and "module"). Defendants argue that the only case cited by Core that deals with DSPs addressed a specific "vocoder" structure. Dkt. No. 138 at 4, n. 1. As to Core's contention that a baseband processor is disclosed, Defendants assert that the specification does not disclose a baseband processor, let alone a baseband processor for performing the formatting function.

Further, Defendants maintain that a baseband processor is still a general purpose processor. *Id*. at 4 (citing Davies Decl.).

Defendants assert that Core's identified specification passage, '634 Patent 4:4-6, merely discloses that formatting occurs and does not disclose an algorithm. Defendants quote *Triton Tech of Texas, LLC v. Nintendo of Am., Inc.*, 753 F.3d 1375, 1379 (Fed. Cir. 2014) for the proposition that merely because algorithms "may have been known to one of ordinary skill in the art" does not rescue the claims "where the algorithm is not disclosed in the patent."

In reply, Core quotes *Williamson* for its holding that the Court must look for description in "the specification or prosecution history that might lead [it] to construe that expression as the name of sufficiently definite structure as to take the overall claim limitation out of the ambit of § 112, para. 6." *Williamson*, 2015 U.S. App. LEXIS 10082 at *20. Core points to the specification's description of a "DSP (13)." Dkt. No. 149 at 2 (citing '634 Patent 4:4-6, 4:40-46, 5:25-29, 7:66-8:8). Core asserts that even if the term is found to be a means-plus-function term, the specification discloses sufficient algorithms for performing the claimed function, because the algorithm would be readily apparent to a person of skill in the art. Dkt. No. 149 at 3 (citing *Aristocrat Techs. Austl. Pty Ltd. v. Multimedia Games, Inc.*, 266 Fed. Appx. 942, 947 (Fed. Cir. 2008) for the proposition that no particular algorithm needs to be identified if it would be readily apparent to one skilled in the art). Core further asserts that the specification identifies known industry standards that disclose algorithms. *Id*..

Analysis

Williamson articulates the standard used to determine whether a claim term is governed by § 112, ¶ 6:

> The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for

> structure. *Greenberg*, 91 F.3d at 1583. When a claim term lacks the word "means," the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to "recite sufficiently definite structure" or else recites "function without reciting sufficient structure for performing that function." *Watts*, 232 F.3d at 880. The converse presumption remains unaffected: "use of the word `means' creates a presumption that § 112, ¶ 6 applies." *Personalized Media*, 161 F.3d at 703.

Williamson, 2015 WL 3687459, at *7. *Williamson* further held that:

> Generic terms such as "mechanism," "element," "device," and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word "means" because they "typically do not connote sufficiently definite structure" and therefore may invoke § 112, para. 6.

Williamson, 2015 WL 3687459, at *8. *Robert Bosch* similarly treated "device" as a "nonce" word. *Robert Bosch*, 769 F.3d at 1099-1101 (also noting two other Federal Circuit cases that treated "device" as a "nonce" word). Both *Williamson* and *Robert Bosch* further considered the specification description to ascertain whether the intrinsic record redefined or disclaimed the plain meaning of "device" in a way that imparted sufficient structure to the term. Nothing in the present specification disclaims or disavows the generic meaning of "device." Though Core asserts that the specification discloses a digital signal processor (DSP), Core has not identified any disclaimer or disavowal limiting the term "device" to a DSP. The surrounding claim language is also drafted in a purely functional manner, providing no structural bounds to "device."

Similar to the "distributed learning control" modifier in *Williamson*, the modifier "formatting" here is not described in the specification in a way that imparts a particular structural significance to the generic "device" term. As noted in *Williamson*:

> Although the "distributed learning control module" is described in a certain level of detail in the written description, the written description fails to impart any structural significance to the term. … While Williamson is correct that the presence of modifiers can change the meaning of "module," the presence of these

> particular terms does not provide any structural significance to the term "module" in this case.

See Williamson, 2015 WL 3687459, at *8. The Court construes the "formatting device for applying…" term as a means-plus-function term.

As to the corresponding structure, the parties do not dispute that a DSP is disclosed. Further, the specification merely refers to a DSP generically without any indication that the DSP is not a general purpose DSP. Core states that the DSP is a baseband processor. However, Core has pointed to no support in the specification limiting the DSP 13 to a particular DSP to the exclusion of general purpose DSPs. In such circumstances, the algorithm requirements of *WMS Gaming* are applicable. This also conforms to the other district court cases cited by the parties because, as noted by Defendants, the cases cited by Core generally dealt with a particular structure, not a DSP in general.

Defendants have failed to show that an algorithm is not disclosed. The claimed function is "applying a low level signal format protocol to a signal for transmission over said wireless interface." The specification provides algorithm details for achieving this function. For example, '634 Patent 4:4-6 describes the formatting as "for example into packets, ATM cells or a TDM bit stream and into a frame structure." Also, '634 Patent 5:27-29 describes the DSP as applying "code 131 which implements layers 1 and 2 (the physical layer, the logical link sub-layer and the link control MAC layer)…."[7] The specification provides further exemplary known protocols which may be utilized. '634 Patent 7:66-8:8. Detailed flow charts and the like are not required to meet the algorithm disclosure. *See Typhoon Touch Tech., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385-86 (Fed. Cir. 2011) ("A description of the function in words may 'disclose, at least to the

[7] At the oral hearing, Core asserted that the relevant portion of 5:25-29 is the portion dealing with the lower level protocols, not the particular higher level protocols 151, 152, and 153. The Court agrees and the Court's reference to the algorithm at 5:25-29 is with respect to the low level protocols as this corresponds to the recited claimed function.

satisfaction of one of ordinary skill in the art, enough of an algorithm to provide the necessary structure under § 112, ¶ 6.'"). One of ordinary skill in the art would understand these disclosures to identify an algorithm that provides sufficient structure to the general purpose DSP.

The Court construes "formatting device (13) for applying a low level signal format protocol to a signal for transmission over said wireless interface" under 35 U.S.C. § 112(6) to have a function of: "applying low level signal format protocol to a signal for transmission over said wireless interface" and a structure of: "a digital signal processor device as shown in Figure 2, having an algorithm according to 4:4-6 (through "…structure)"), 4:40 (starting "B-ISDN...."))-46, 5:25-29 (the low level protocol portion of this passage), 7:66-8:8, 8:13-17 and statutory equivalents thereof."

2. "alternative high level signalling protocols" (claim 1) "high level [signalling] protocol[s]" (claims 4, 20, 23, 25) - (Term 5)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary. To the extent the Court finds a construction is necessary, Core Wireless proposes the following: Claim 1: alternative stacks of communications protocols at the network layer and above in terms of the OSI reference model Other claims: stacks of communications protocols at the network layer and above in terms of the OSI reference model	communication protocols at the network layer (layer 3) or above, corresponding to incompatible backbone networks

The primary dispute between the parties relates to Defendants' inclusion of "incompatible backbone" networks.

Positions of the Parties

Core asserts that although the terms are not necessarily ones that a jury would be familiar with, construction would not be helpful because the patent does not provide an explicit definition, and the terms cannot be explained in a way helpful to a jury in a short phrase or two. Core argues that expert testimony would be the best way for the jury to understand the terms. Dkt. No. 123 at 11. Core asserts that to the extent construction is necessary, Core's construction is more consistent with the specification. Core derives its construction from '634 Patent 4:49-51, which states that the protocol converter "is arranged to provide the 'stack' of higher layer protocols (for example the network layer protocols and above)…."

Core objects to Defendants' construction as adding limitations from the specification. Core points to Defendants' inclusion of "incompatible backbone networks." Core asserts that the patentee deliberately chose not to use this term in the claims at issue (independent claims 1 and 20), as evidenced by the fact that the term is found in dependent claim 22 and in independent claims 23 and 25. Core therefore argues that claim differentiation supports Core's position and that Defendants' construction would render the "backbone network" redundant in some claims. Core also objects that "separate and incompatible" has no support in the specification, and that "and above" matches the specification, while Defendants' use of "or above" does not match the specification.'634 Patent 4:50-51.

Defendants frame the dispute as relating to the meaning of "alternative." Defendants say the specification confirms that protocols are "alternative" when they are for "incompatible" backbone networks. Dkt. No. 138 at 5. They base their position on a specification quote: "the present invention is primarily concerned with mobile communications in which multiple backbone networks…operate with technically incompatible communication protocols" ('634

Patent 1:57-62) and "two or more different higher level communication protocols (corresponding to those utilized by different backbone networks)" ('634 Patent 2:13-16). At the hearing, Defendants also cited to a passage in the specification which refers to "a description of the stack of higher level (i.e. backbone network dependent) protocols." '634 Patent 4:61-62.

Analysis

Defendants' arguments to narrow the ordinary meaning of "alternative" and to include that narrower meaning in all claims fail for multiple reasons. *First*, the Court notes that the term "alternative" is not present in independent claim 20, rather only in independent claim 1. There is no basis to apply Defendants' proposed special definition of "alternative" to claims that do not include this limitation. *Second*, as Core notes, some claims reference "backbone" (claims 22, 23 and 25) and another claim references "incompatible" (claim 23), but other claims do not reference either. The patentee's usage of terms in other claims can be instructive. *Phillips*, 415 F.3d at 1314 (other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent). The patentee knew how to explicitly claim "incompatible" networks and "backbone" networks, and this suggests that the Court should not read in these limitations when they are not explicitly claimed. Finally, and most importantly, the specification passages cited by Defendants do not clearly redefine or disavow the meaning of "alternative." The passage at '634 Patent 1:57-62 uses the qualifier "primarily," and the passage at '634 Patent 2:13-16 does not even mention "incompatible." As to the remaining passages pointed to by Defendants, such passages merely describe embodiments of the specification and do not limit "alternative protocols" or "protocols" to incompatible backbone network protocols. These disclosures do not meet the "exacting"

standard for disclaimer and lexicography mandated by the Federal Circuit. *GE Lighting*, 750 F.3d at 1309.

Having resolved the primary dispute as to "protocols," the parties do not, in substance, appear to dispute what "high level" protocols are. Core's approach to the construction, in general, is more comprehensible. Further, the Court notes that the specification references network layer "and" above. '634 Patent 4:49-51.

The Court construes "alternative high level signalling protocols" to mean "alternative communication protocols at the network layer and above" and "high level [signalling] protocol[s]" to mean "communication protocols at the network layer and above."

3. "backbone network(s)" - Claims 22, 23, 25 (Term 6)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary. To the extent the Court finds a construction is necessary, Core Wireless proposes the following: network(s) comprising a core network element or elements through which voice calls, fax calls, or data exchanges (collectively termed "sessions") are routed after leaving the air interface at the base station, and associated signaling and communications protocols	a network comprised of mobile switching centers and the physical links (e.g. fibre optic cables) that interconnect them

The primary dispute between the parties relates to whether the specification limits "backbone network" to mobile switching centers. Core asserts mobile switching centers is a term relevant to GSM networks but not relevant to other networks.

Positions of the Parties

Core takes the position that this term does not need construction. Core asserts that its alternative construction and Defendants' construction is drawn from '634 Patent 1:26-30, but that Defendants attempt to limit the claims to GSM systems by inserting the term "mobile switching centers" (MSCs). Core argues that MSC is a term used in some networks (including GSM), but other networks use different terms. However, because the term "core network" is a general term that applies to all network types, Core argues it should not be limited to a network that uses MSCs. Dkt. No. 123 at 12 (citing extrinsic evidence). Core also asserts that Defendants' construction does not account for the signaling that occurs on the hardware. Core includes references to "signaling and communications protocols" in its construction because it is this signaling that makes the backbone a "network" and not just a backbone. *Id*.

Core rebuts the specification passage cited by Defendants as merely an example of one type of GSM backbone, not a definition of all backbones. Dkt. No. 149 at 3. The patent states MSCs make up "a" GSM backbone network, not that all backbone networks are defined in such manner. *Id* (analogous to a "thousand acres" of pine trees can "make up" a forest, but a forest is not defined as a thousand acres). Core also identifies passages where the specification describes other backbones such as UMTS. *Id*. (citing '634 Patent 2:38-40).

Defendants argue that the specification provides a definition: "MSCs [mobile switching centres] together with the physical links (e.g. fibre optic cables) which interconnect them, make up a backbone network." '634 Patent 1:26-28. According to Defendants, this definition should control. Dkt. No. 138 at 6 (citing lexicography cases).

The parties did not provide argument on this term at the oral hearing.

Analysis

The background of the invention describes "mobile telephony networks such as GSM" and then explains that for GSM, MSCs and physical links "make up a backbone network." '634 Patent 1:19-28. Such language, in context, merely describes "a" backbone network rather than a definition of all backbone networks. The patentee is free to act as his own lexicographer, but any special definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388 (Fed. Cir. 1992). The passage cited by Defendants is not a clear re-definition of "backbone network." Having rejected Defendants' lexicography argument, the dispute between the parties is resolved, and the term does not need construction.

The Court construes "backbone network[s]" to have its plain and ordinary meaning and no further construction is required.

III. '536 Patent

1. "bad state" - Claims 1, 2, 5, 7, 9, 10, 17, 18, 19 (Term 11)

Core Wireless's Construction	Defendants' Construction
a state of a frame from which the receiver can conclude that the frame should not be treated as a normal good speech frame	a state of a frame from which the receiver can conclude that the frame should not be treated as a normal good frame

The parties dispute whether "speech" should be included in the construction.

Positions of the Parties

Core argues that the patent provides a definition:

> As was stated above, a "speech frame" generally means a frame that is used in the system concerned to transmit information, such as speech, music or other sound, a video signal, or multimedia. **A "bad" frame within the context of the present application means a frame wherefrom the receiver can conclude that the frame should not be treated as a normal good frame.** In the case of the exemplary GSM system, a bad frame can be detected by means of the cyclic redundancy check (CRC) value.

'536 Patent 6:54-63 (emphasis added). Core asserts that its construction matches the definition

with the addition of "speech" in "good speech frame." Core inserts "speech" to make clear the distinction between a "bad" frame and a normal speech frame, which Core argues is clear from the context of the passage cited above. Dkt. No. 123 at 16.

Core concedes that Defendants' construction is largely in agreement with Core's construction, the only difference being the inclusion of "speech." But Core takes the position that it is important to include the term "speech" so that a jury will understand that a "bad state" is defined, by the patent, in contrast to a normal good speech frame. *Id*. at 17.

Defendants argue that Core seeks to improperly add a limitation by inserting the word "speech" in the construction. Defendants provide three reasons why the intrinsic record rejects the insertion of "speech." *First*, inserting "speech" would render language in independent claims 9 and 19 meaningless. Defendants assert that these claims require detecting the presence of a stolen frame based upon two criteria: the receiver determines whether the frame is a good state or bad state, and the receiver searches for the presence of a unique bit pattern within the frame. Dkt. No. 128 at 15 (citing '536 Patent 7:65-8:2, 12:60-64). Defendants argue that Core's construction would require the system to simply know a frame is not a speech frame without detecting the presence of the unique bit pattern. *Second*, Defendants assert that Core's concept of "bad frame" is inconsistent with the inventor's stated intent to use a "bad frame" to accomplish frame stealing while remaining compatible with prior art systems. Dkt. No. 138 at 15 (citing various specification passages). Third, the specification teaches that "speech" is a term of convenience that is interchangeable with other concepts, such as music, video, or other multimedia. '536 Patent 1:19-28. Defendants argue that referencing "speech" in the construction would improperly limit the claim's scope. Dkt. No. 138 at 16.

At the hearing, the Court proposed the construction adopted below. This proposal did not utilize "speech" but clarified "a normal frame being user information." Defendants agreed to the Court's proposal. Core agreed to the Court's proposal with one caveat, asking to add "speech" into the construction. Dkt. No. 200 at 30-33, 33-34.

Analysis

The specification provides a clear definition: "A 'bad' frame within the context of the present application means a frame wherefrom the receiver can conclude that the frame should not be treated as a normal good frame." '536 Patent at 6:58-61. The parties, in effect, dispute whether "normal" should be clarified. Core seeks to include "speech" to provide clarity. The patent focuses on inserting messages into a stream of user information frames. Though a message may be considered a "bad frame" with respect to user information, the message is still a good message. '536 Patent Figure 4, Abstract, 6:55-7:29, 8:39-9:24. The specification makes clear that information is not just "speech" but rather "the term 'speech' is used even though the information to be transmitted in the system may comprise other types of sound, music, a video signal, multimedia, etc. instead of or in addition to speech." '536 Patent 1:19-22. In context of the specification, utilizing only "speech" in the construction is ripe for confusion. Moreover, the claim language references "user information." At the oral hearing, both parties acknowledged that the user information includes speech, music, video, etc. Dkt. No. 200 at 31-33. In context of the specification and the surrounding claim language, it is clear that a "normal good frame" references good user information.

The Court construes "bad state" to mean "a state of a frame from which the receiver can conclude that the frame should not be treated as a normal good frame, a normal frame being user information."

2. "good state" - Claims 1, 2, 5, 7, 9, 10, 17, 18, 19 (Term 12)

Core Wireless's Construction	Defendants' Construction
a state of a frame from which the receiver can conclude that the frame should be treated as a normal good speech frame	Indefinite

Defendants assert that the term is indefinite because Core's construction is circular and under Core's construction an error correction process could show both good and bad frames to be "good."

Positions of the Parties

Core proposes that a good state is the opposite of a "bad state." Core's construction is the same as "bad state" except with the removal of the word "not." Core asserts that the context of the patent relates to whether a frame is a good speech frame or not (for example a signaling frame inserted into a string of speech frames), not merely whether a frame was "transmitted error-free." Core argues that in the patent, a "good" state relates to whether a frame is a normal speech frame (good) or a signaling frame (bad) slipped into the speech channel. Dkt. No. 123 at 17.

Core characterizes Defendants' indefiniteness argument as based on whether a good state can also be read to cover a frame that is transmitted error-free but contains signaling messages. *Id*. at 17-18. Core responds that a signaling message is what the '536 Patent calls a "bad frame" with the deliberate use of quotation marks; a "good state" is a normal speech frame and a "bad state" is a frame marked to show that it contains a signaling frame. *Id*. at 18. Core quotes the patent:

> In accordance with the invention, messages are transmitted in a common channel with the information to be sent from the transmitter to the receiver in such a way that the speech frame corresponding to the message is marked as bad (for example

> by inserting a faulty CRC value in the frame), and the bit pattern corresponding to the message is inserted in one or more frames. Frames are "stolen" for message transmission only for very short periods of time and only for the exact duration of the message transmission, whereas at other times the entire channel is normally available for information transfer.

'536 Patent 6:64-7:7.

Defendants acknowledge all the parties agree that a "good state" is the opposite of a "bad state." Dkt. No. 138 at 16. But Defendants assert that Core's construction is circular since it defines "good state" with respect to a "normal good frame," and therefore under Core's construction the same frame could be both "good" and "bad." Defendants say the patent discusses using a CRC check to determine whether a frame is "good" or "bad," and if a CRC check reveals the transmission contains no errors, one would not know whether to treat the frame as good or not. *Id*.

Analysis

The Defendants are attempting to read a particular method of analyzing frame data for containing errors, CRC detection, into the claims. However, the claims are not so limited. Moreover, in the specification passages described above for the "bad state" term, a "good" or "bad" state is discussed in context of normal user information frames or frames which are stolen to send messages (such frames being "bad" with regard to user information but may be accurate and error-free as to the message). "Bad" and "good" are not used to merely refer to messages that contain errors versus those that are error-free. That this term is reasonably certain is further indicated by the Defendants agreement that "'good state' should be defined as the opposite of 'bad state.'" Dkt. No. 138 at 16. Once a bad state is defined, a good state would readily be understood to be the opposite. The Court finds that the term satisfies the reasonable certainty standard for definiteness. *See Nautilus*, 134 S. Ct. at 2129–30.

The Court construes "good state" to mean "a state of a frame from which the receiver can conclude that the frame should be treated as a normal good frame, a normal frame being a user information frame"

3. "unique bit for each individual message, placing the corresponding bit pattern into a transmission frame" - Claim 1 (Term 13)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary	Indefinite

The claims, as printed by the Patent Office, included an extraneous reference to "unique bit" at the beginning of the disputed terms even though "unique bit" was not in the term as prosecuted. The parties dispute whether this error renders the claims invalid.

Positions of the Parties

Core argues that the term needs no construction and is sufficiently described in the '536 Patent at 6:64-7:7, 8:54-65, 10-19-41, and 10:55-11:21. Dkt. No. 123 at 18. Core asserts that, in the context of the specification, a person skilled in the art would understand that the words "unique bit" (which follow the words "unique bit pattern" of the previous claim element) are superfluous and are not needed to understand the meaning of the element. *Id*. Core notes that the second use of the words "unique bit" did not exist in the last claims submitted by the applicant and allowed by the Patent Office. *Id*. at 18, n. 69 (citing Dkt. No. 123 Ex. 11 at 880, 889). Core believes that the inclusion of these words may simply have been the result of an error of the Patent Office. *Id*. at 18. Core argues it is well settled law that a district court can correct an obvious error in a patent. *Id*. Core also characterizes the claim as understandable with or without the words "unique bit." Alternatively, if the Court finds that a construction is necessary, Core asserts that the Court should just remove "unique bit." Dkt. No. 123 at 19.

Notwithstanding the apparent typographical error, Core argues it is clear from the context of the claim that it was intended to read: "for each different message, defining a corresponding unique bit pattern…." Core says the operative question is how one skilled in the art would understand the claim. Dkt. No. 149 at 5. Core also argues that this case is distinguishable from *Allen Eng'g* because in *Allen Eng'g* the claim was abruptly truncated such that it was impossible to make sense of the claim; here, one skilled in the art would understand the claim. *Id*. (citing *Allen Eng'g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002)).

Defendants contend that the claim establishes each individual message has a corresponding "unique bit pattern," not a "unique bit." Dkt. No. 138 at 17. Defendants therefore assert that the reference to "unique bit" would only make sense grammatically if additional missing words were added. These flaws, Defendants say, make the claim unintelligible. Defendants argue Core's position that the words "unique bit" are superfluous is legally incorrect because all claim terms must have meaning. *Id*. (citing *Allen Eng'g*, 299 F.3d at 1349). Defendants also note that the previous patent owner filed a request for correction of a number of errors in the '536 Patent but did not seek to correct "unique bit." Dkt. No. 138 at 17. Defendants assert that since the proper correction is not obvious on the face of the patent, the Court cannot fix the error. *Id*. (citing *Group One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1302 (Fed. Cir. 2005) (explaining that missing language appeared in the prosecution, but the district court lacked the authority to correct a patent where "one cannot discern what language is missing simply by reading the patent")).

Analysis:

Reviewing the file history, it is apparent that the words "unique bit" were not contained in the disputed term and that the insertion of the words was an error in printing the patent. Dkt.

No. 123 Ex. 11 at 880, 889. The Federal Circuit has made clear the requirements needed for a district court to correct an error:

> This case presents the question whether a district court can act to correct an error in a patent by interpretation of the patent where no certificate of correction has been issued. We hold that a district court can do so only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.

Novo Industries, LP v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed. Cir. 2003). *H-W Technology, L.C. v. Overstock.com, Inc.*, 758 F.3d 1329 (Fed. Cir. 2014) is also instructive. In *H-W Technology*, every party agreed the patent office made a printing error by leaving out a limitation. However, the Federal Circuit found that since the correction of the error was not evident on the face of the patent, correction could not be made.

> H-W first argues that the district court itself had authority to correct the error in claim 9. A district court can correct a patent only if, among other things, "the error is evident from the face of the patent." *Grp. One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1303 (Fed.Cir.2005); *see Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1357 (Fed.Cir.2003).
> Here, the error is not "evident from the face of the patent." Claim 9 reads coherently without the missing limitation. Nothing in the surrounding claim language indicates that the limitation was missing.

H-W, 758 F.3d at 1333. Further,

> The parties appear to agree that the PTO's error is clear on the face of the prosecution history. But this court has already deemed evidence of error in the prosecution history alone insufficient to allow the district court to correct the error. *See Grp. One*, 407 F.3d at 1303 ("The error here is not evident on the face of the patent. The prosecution history discloses that the missing language was required to be added by the examiner as a condition for issuance, but one cannot discern what language is missing simply by reading the patent. The district court does not have authority to correct the patent in such circumstances.").
>
> In sum, we hold that the district court did not have authority to correct the error in claim 9 and correctly declined to do so.

H-W, 758 F.3d at 1334.

Here, even if it is clear from the file history that the patent office printed extra words "unique bit," more is needed to allow correction. From the face of the patent, it is not clear that an error occurred. Even if it was clear an error occurred, it would not be clear what the error was and whether "unique bit" should be deleted or some other words should be added. In such circumstances, this Court cannot change the claim. *Id*.

As the claim language will not be changed, the Court must determine if the claim language, as issued, is reasonably certain. *See Nautilus*, 134 S. Ct. at 2129–30. Here, the immediately preceding language is "for each different message, defining a corresponding unique bit pattern." The specification similarly refers to a corresponding bit pattern for each message. '536 Patent, Abstract, 6:64-7:3, 8:2-8, 8:54-57, 9:6-9, 9:55-58, 10:21-23. In context of the specification and the claim language, as drafted, the "unique bit for each individual message" references the unique bit pattern of the immediately prior recited "for each different message, defining a corresponding unique bit pattern." As such, the claim is reasonably certain and needs no further construction.

The Court finds that "unique bit for each individual message, placing the corresponding bit pattern into a transmission frame" has its plain and ordinary meaning and no further construction is needed.

4. "[restricting the number of consecutive frames marked as messages to a sufficiently low number so as not to] substantially impair the quality of the user information" - Claims 1, 17 (Term 15)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary	Indefinite as part of a larger claim term, "restricting the number of consecutive frames marked as messages to a sufficiently low number so as not to substantially impair the quality of the user information."

The parties take conflicting positions as to whether the terms "sufficiently low" and "substantially impair" are indefinite.

Positions of the Parties

Defendants contend that "sufficiently low" and "not substantially impair" are indefinite terms of degree. Core responds that this argument was raised during prosecution, where the Applicant successfully explained to the examiner that "when read in context of the claims and the specification, a POSITA would recognize what the term 'low' means" and that the specification teaches what would be "a sufficiently low number so as not to substantially impair the quality of the user information." Dkt. No. 123 at 20 (quoting Dkt. No. 123 Ex. 11 at 819). Core points out that the specification explains merely missing one speech frame or having a lapse in transmission for a very short period of time will not substantially impair the intelligibility of the signal or the quality of the reception. *Id*. (citing '536 Patent 6:45-54, 7:3-14, 7:26-35, 8:9-21, 11:22-30). A person skilled in the art would therefore understand with reasonable certainty how infrequently transmission frames should be marked as messages to not substantially impair the quality of the speech signal. *Id*. (citing Chandler Decl.).

Core argues it is settled law that relative terms like "substantially" do not render patent claims indefinite; the intrinsic evidence need only provide general guidance or examples to one skilled in the art and that mathematical precision is not required. Core asserts that the specification contrasts errors that cause "audible disturbance in synthesized speech" with errors that are almost imperceptible. '536 Patent 3:51-58. In another example, the specification teaches that a change in one speech frame may cause a perceptible snap in the speech, where the listener can infer the missing information from the context. Dkt. No. 123 at 21 (citing '536 Patent 6:46-48). Core asserts that one skilled in the art would understand that as long as the speech is

intelligible, the quality is not substantially impaired. *Id*. Core notes that even *Nautilus* confirms the terms must be "read in light of the patent's specification and prosecution history." Dkt. No. 149 at 6 (quoting *Nautilus*, 134 S.Ct. at 2128).

Defendants contend that the terms are "facially subjective," and the specification provides no "objective boundaries for those skilled in the art." Dkt. No. 138 at 19 (quoting *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371, 1373 (Fed. Cir. 2014)). Defendants argue the specification provides no standard for what it means to "substantially" impair. Therefore, Defendants say, the limitation introduces multiple levels of subjective meaning. First, the specification suggests that "message transmission in accordance with the invention does not normally impair the quality of the reception **at all**." '536 Patent 7:13-14 (emphasis added). Second, Defendants assert that "substantially" modifies the equally vague and subjective term "quality of the user information." According to Defendants, the patent does not explain what "qualities" are relevant, making it impossible to determine how much impairment is allowed. Dkt. No. 138 at 19-20. Defendants note that the patent refers to speech, sound, music, video and multimedia, all of which have many qualities that can be "impaired." Third, Defendants identify the reference to "sufficiently low number" as also subjective. Defendants note that Core points to the specification disclosure that one consecutive frame is permissible but that Core's expert argues sometimes two consecutive frames might be permissible. *Id*. at 20.

As to the file history statements, Defendants argue these statements were merely conclusory and the specification citations made in prosecution are equally vague, for example, "almost imperceptible." Defendants assert that, under *Nautilus*, the specification fails to teach whether, and if so when, marking more than the minimum possible (one) consecutive frame is within the scope of the claims. *Id*.

At the oral hearing, the Defendants maintained that the term was indefinite. If found definite, Defendants proposed modifications to the Court's preliminary construction: "a number such that a listener is not capable of detecting the missing user information." In particular, Defendants proposed changing "listener" to "user" and adding that what is detected is the "absence" of the missing user information. Dkt. No. 200 at 36-37. Core agreed to the Court's preliminary construction. Core further agreed that detecting the absence of the missing user information was the relevant concept. Core also agreed to inclusion of "user." *Id*.

Analysis

The patent specification provides objective guidance as to what is a sufficiently low number so as not to "substantially" impair the user information. *See Exxon Research and Eng'g Co. v. United States*, 265 F.3d 1371 (2001) (noting that, for a term which included "substantially," "[w]hen a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree."). The specification here explains that merely missing one speech frame or having a lapse in transmission for a very short period of time will not substantially impair the intelligibility of the signal or the quality of the reception.'536 Patent 6:45-54, 7:3-14, 7:26-29, 8:9-21. These passages provide an objective standard that replacement of a low number of consecutive frames may be done so that a user is not capable of detecting the missing frames:

> The invention is based on the idea that in transmission over the air interface, part of the frames are corrupted anyway. Change of one speech frame may cause a perceptible snap in the speech. **However, the listener can infer the missing information from the context. To correct transmission errors, mobile communications systems have usually implemented mechanisms for replacing bad speech frames (for example, entirely or partly with a preceding good speech frame). When this technique is used, the missing of one frame is normally not even detected.** '536 Patent 6:45-54.

> Frames are "stolen" for message transmission only for very short periods of time and only for the exact duration of the message transmission, whereas at other times the entire channel is normally available for information transfer. **In the present context, the concept of a "short-term message" means a message that is so short--usually having the length of one speech frame only--that it can be sent in the same channel with the information to be transmitted, without the intelligibility of the receive signal being substantially impaired. In practical situations, the message transmission in accordance with the invention does not normally impair the quality of the reception at all.** This is due to the fact that such messages are mainly needed at the very start of the connection only … . '536 Patent 7:3-16.
>
> **Even in that case, the technique for replacing bad speech frames which is commonly used in mobile communications networks will mask the message, so that the effect on speech quality is practically non-existent.** '536 Patent 7:26-29.
>
> Since the entire channel is normally available for speech transmission except for the moment of sending the message, the technique in accordance with the invention does not reduce the capacity of the speech channel. In theory, the technique of the invention slightly reduces speech quality at the time of sending the message, **but experience has shown that the listener is not capable of detecting the missing of one speech frame if the bad or missing speech frame is replaced with a preceding good speech frame.** On account of the advantageous selection of redundancy and bit patterns corresponding to the messages, the technique in accordance with the invention is reliable against transmission disturbances. '536 Patent 8:9-21.

Thus, the specification provides guidance as to what is meant by "substantially." Further, the Court includes the changes proposed by the parties at the oral hearing regarding "user" and "absence."

The Court construes "a sufficiently low number so as not to substantially impair the quality of the user information" to mean "a number such that a user is not capable of detecting the absence of the missing user information."

5. **"inserting a bit pattern corresponding to the message into the at least one transmission frame" - Claims 1, 17 (Term 16)**

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary	Indefinite

The parties dispute whether the prosecution history injected ambiguity into the meaning of the term "inserting."

Positions of the Parties

Core says the term is described in the passages at '536 Patent 6:64-7:7, 8:54-65, 10:19-41 and 10:55-11:21, and that the Applicant never made contradictory statements during prosecution. Core asserts that Defendants make a specious read of the prosecution to claim that this limitation must be performed without interrupting the speech channel. Core points to Applicant statements that the claimed invention eliminates the need to interrupt the speech channel or to set up a separate message channel by inserting "very short messages" into the transmission frame or "limiting the number of consecutive messages to a very low number." Dkt. No. 123 at 21-22 (citing Dkt. No. 123 Ex. 11 at 886). Core concludes that by employing the disclosed method, a pause or interruption in the speech channel is not necessary because the human ear cannot discern the small number of missing frames. *Id*. at 22.

Defendants assert that one skilled in the art would not understand the meaning of "inserting" because, during prosecution, the Applicant stated that signaling information could be inserted into a speech frame without needing to interrupt the speech. Dkt. No. 138 at 20-21, n.11 (noting that the file history (Dkt. No. 123 Ex. 11 at 886) stated that the '536 Patent eliminated the prior art step of "interrupting a user information (e.g., speech) channel, or waiting for a pause in user information, or sending a message on a different channel."). Defendants argue that the specification, in contrast, teaches that "inserting" a bit pattern into a speech frame necessarily causes interruptions in the speech channel. Dkt. No. 1389 at 21 (citing '536 Patent 6:47-48). As

with "substantially impair," Defendants argue that a person of ordinary skill would not understand how much interruption is allowed.

At the oral hearing, the Defendants agreed that if the term was found definite, they did not object to a plain and ordinary meaning construction. Dkt. No. 200 at 38.

Analysis

In context of the specification disclosure, the file history passage is clear and does not contradict the specification. Both the specification and file history support inserting a message in the speech channel. This is done without halting the speech channel, but rather by "stealing" frames such that the speech is not substantially impaired and is still intelligible. '536 Patent 6:45-54, 7:3-14, 7:26-35, 8:9-21, 11:22-30. The prosecution history does not state that the messages are not inserted. Dkt. No. 123 Ex. 11 at 886 (discussing inserted frames to be allowed, though limited "by limiting the number consecutive messages to a very low number, e.g., one, the human ear and/or bad frame replacement function of GSM can provide the missing information"). In the context of the specification and the prosecution history, insertion of a frame is not an interruption in the speech channel where the human ear cannot discern the missing frame.

The Court finds that "inserting a bit pattern corresponding to the message into the at least one transmission frame" has its plain and ordinary meaning and no further construction is necessary.

6. "replacing means for replacing a bad frame at least partly with a preceding good frame" - Claim 19 (Term 17)

Core Wireless's Construction	Defendants' Construction
Function: replacing a bad frame at least partly with a preceding good frame **Structure:** the "Bad parameter replacement" box 128 in Fig. 4 as described in 9:20-24 of the '536 specification, and statutory equivalents thereof	**Function:** replacing a bad frame at least partly with a preceding good frame **Structure:** Receiver 102 with Block 128 "bad parameter replacement" for replacing bad speech frames and algorithm described in 9:2-8 & 9:20-24

The parties dispute whether Defendants seek to add structure that goes beyond the claimed function.

Positions of the Parties

Core objects to Defendants' inclusion of the passage at 9:2-8 in the construed structure. The passage at 9:2-8 concerns the decoding of the encoded data by the message decoder 120. Core asserts that the message decoder 120 is clearly distinct from the bad parameter replacement box 128 in Figure 4, and that the message decoder's functions are not linked to the claimed function. Dkt. No. 123 at 22. Core also asserts that inclusion of "Receiver 102" is overbroad and includes additional structures beyond the "bad parameter replacement" box 128. *Id*. Core argues that the structure for "replacing" should be limited to just the replacing structures, and that the decoder is used for supplying good frames, not for the replacement function. Core argues that the decoder does not perform any part of the replacement function. Dkt. No. 149 at 6.

Defendants rejoin that the message decoder 120 must interact with box 128 to perform the stated function because in order to replace a frame, the replacing means must first know that the frame is bad. Defendants argue that the bad frame determination is made in the message decoder. Dkt. No. 138 at 22. Defendants also assert that the replacement box 128 must access the

data from the preceding good frame, which resides in the message decoder 120, in order to replace the bad frame. *Id*.

Analysis

The Court agrees with Core's arguments. Defendants seek to add structure that goes beyond the claimed function. The structure of a means-plus-function term is limited to the structure that performs stated function. *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001) ("structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim."). Defendants seek to add to the replacing function the function of detecting the bad frame. However, the stated function is merely *related* to replacing a bad frame, it does not mandate how a frame is determined to be bad. That such information may be an input to the replacing means does not change the stated function and corresponding structure. Though Defendants emphasize decoder block 120, Defendants' construction references more than merely the decoder block. Defendants' construction includes receiver 102, a structure that includes numerous other functions: a receive block, a channel decoder 126, the message decoder 120 and a speech decoder 110. The only structure necessary to perform the claimed replacement function is the bad parameter replacement block 128.

The Court construes "replacing means for replacing a bad frame at least partly with a preceding good frame" to have a function: "replacing a bad frame at least partly with a preceding good frame" and a structure: "the 'Bad parameter replacement' box 128 in Fig. 4 as described in 9:20-24 of the '536 specification, and statutory equivalents thereof."

IV. ’151 Patent

1. “for both the uplink and the downlink channels” - Claim 14 (Term 18)

Core Wireless’s Construction	Defendants’ Construction
for both the uplink channels and for signaling data (e.g., acknowledgements) in the uplink direction for the downlink channels	Plain and ordinary meaning / no construction necessary.

The parties dispute whether the reference to “downlink channels” should include the uplink transmissions that are made for downlink channels.

Positions of the Parties

According to Core, the patent explains that “both the uplink and downlink channels will share the same timing advance value for transmissions in the uplink direction.” ’151 Patent at 3:64-66. Core asserts that it is made clear that downlink transmissions do not require timing advance values (“TAVs”), but that downlink transmissions may have associated uplink-direction transmissions, for example an acknowledgement of the downlink transmission. Dkt. No. 123 at 23. “A TAV is also required when a downlink channel is established as, even though user data is coming from the BSS to the MS, certain signalling data (e.g., acknowledgements) is going in the reverse direction (i.e., the uplink direction).” ’151 Patent 2:34-38. Core asserts that its construction will make clear that the claim is talking about TAVs used as uplink acknowledgments in response to a downlink channel, and not the downlink channel itself.

Defendants argue that Core is attempting to read in limitations from the specification, and that such importation would improperly read the term “downlink channel” out of the claim. Dkt. No. 138 at 12. Defendants assert that the Examiner’s Statement of Reasons for Allowance specifically mentioned “both uplink and downlink channels.” *Id*. (quoting Dkt. No. 138 Ex. 4 at CORE_A3-06777).

In reply, Core asserts that it is not reading "downlink channel" out of the claims but merely making its construction conform to the specification. Defendants do not dispute that downlink channels do not themselves require a timing advance value (TAV) but that each downlink channel sends acknowledgments in the uplink direction which do require a TAV. Dkt. No. 149 at 7. Core argues that this is what the claim term is referencing with regard to "timing advance slots … for both the uplink and downlink channels." Absent this clarification, Core expects Defendants to make specious arguments to the jury based on a deliberate misreading of the specification. As to the Examiner's reasons for allowance, Core points out that the Examiner explicitly noted this concept by referring to uplink and downlink channels "so that transmitted data is received at the base station." Dkt. No. 138 Ex. 4 CORE_A3-06777. Core asserts this unequivocally refers to transmission in the uplink direction. The same concept was also stated by the Applicant in prosecution: "Thus, both the uplink and downlink channels will share the same timing advance value for transmissions in the uplink direction…." *Id*. at 8 (quoting Dkt. No. 138 Ex. 4 2002-04-01 Applicant's Remarks at CORE_A3-06769) (emphasis in original).

Analysis

"A claim interpretation that excludes a preferred embodiment from the scope of the claim 'is rarely, if ever, correct.'" *Globetrotter Software, Inc. v. Elam Computer Group Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004) (quoting *Vitronics Corp.*, 90 F.3d at 1583). In context of the specification, it is clear that reference to downlink channels includes the corresponding uplink transmissions of the downlink channel. "Both the uplink and downlink channels will share the same timing advance value for transmissions in the uplink direction." '151 Patent at 3:64-66. Further, "a TAV is also required when a downlink channel is established as, even though user data is coming from the BSS to the MS, certain signalling data (e.g., acknowledgements) is

going in the reverse direction (i.e., the uplink direction)." *Id*. at 2:34-38. In this context, the patent also states: "[t]here is no need to repeat the transmission of timing advance information for all channels, as the same timing advance value can be used for all uplink transmissions (associated with both uplink and downlink channels)." *Id*. at 7:7-10. Defendants have pointed to no uses of a TAV for the downlink transmissions of a downlink channel. In contrast, as noted above, the specification repeatedly teaches the use of a TAV for the uplink transmission of a downlink channel. This also conforms to the prosecution history. Providing no construction would create confusion and potential for misleading arguments contrary to the clear specification.

The Court construes "for both the uplink and the downlink channels" to mean "both for the uplink channel and for data transmission in the uplink direction for downlink channel."

2. "data" - Claims 13, 14 (Term 19)

Core Wireless's Construction	Defendants' Construction
user or signalling data	Plain and ordinary meaning / no construction necessary.

Defendants assert that the plain meaning in the claims limits "data" to only "user data." The parties dispute whether "data" includes "signalling data." In reply, Core has clarified that it is only seeking construction of "data" where that term is used without the qualifier "user data."

Position of the Parties

Core notes that in the patent, the generic term "data" (as opposed to "user data") is used to indicate both user data and signaling data. Core cites to '151 Patent 3:49-51 and Figure 6 as explaining that the MS receives TAI signaling data to enable the MS to receive the TAV. Core

asserts that the specification explains that the TAV is used for transmitting either signaling data (acknowledgments) or user data. Dkt. No. 123 at 24 (citing '151 Patent 2:32-38). Core does not seek to construe "user data" but only seeks to construe "data" where the claims use the word "data" without the qualifier "user." Dkt. No. 149 at 8.

Defendants respond that the term "data" is well understood. Defendants note that the asserted claims are limited to "user data packet switched transmission channels" and "user data channels," and argue that Core's construction would change the terms to "user or signaling data packet…" and "user or signaling data channels." Defendants therefore conclude that Core's construction is contrary to the claim language.

Analysis

Defendants' argument fails due to both the claims themselves and the specification disclosure. There are places in the claims that just recite "data." To the extent Defendants are arguing that the plain and ordinary meaning of the term "data" limits the term to "user data," the Court rejects this argument. For example, claim 13 recites "data using the timing advance index." Elsewhere, the claim does reference "user data channels" but the use of "data," by itself with no qualifier, has a distinct and broader meaning. The specification also uses the term "data" in a way that is not limited to "user" data. '151 Patent 2:32-38, 6:42-43 (referencing Figure 6 "TAV data packet"), 3:49-51, Figure 6. Where "data" is used without a modifier, its ordinary meaning applies and the term is not limited to user or signaling data. However, where other modifiers are used, such as "user data," it is clear such usage references specifically to "user data." Thus, the context of the claims makes clear whether generic data is recited, or specific "user data." Because the claims make this clear, no further construction is necessary.

The Court finds that "data" has its plain and ordinary meaning and that no further construction is necessary.

3. "receive a timing advance value once" - Claim 14 (Term 20)

Core Wireless's Construction	Defendants' Construction
receive a timing advance value that is shared by both uplink and downlink channels in the uplink direction	receive a single timing advance value only once per every eight multiframes for use on both the uplink and downlink channel of the mobile station Defendants state in their brief that the language "only once per every eight multiframes" may be removed (Dkt. No. 138 at 11-12).

The primary dispute is the same as the uplink and downlink dispute discussed above with regard to Term 18.

Positions of the Parties

The patent explains that "both the uplink and downlink channels will share the same timing advance value for transmissions in the uplink direction." '151 Patent at 3:64-66. Core argues that, while the patent discloses "preferably" the TAV will be updated "after predetermined intervals," the patent does not require the update be at certain intervals. Dkt. No. 123 at 24 (quoting '151 Patent 5:11-14). Core objects to Defendants requiring "once per every eight multiframes" becuase this limitation restricts the claim to GPRS with multiframe structures. Core asserts that in prosecution the Applicant explained that the invention "is not limited to GPRS" but rather "GPRS is merely an example of one possible use." *Id.* (citing a 2002-09-09 Response to Allowance at 1-2).

As to Defendants' offer to remove the "multiframe" language from the construction, Core argues that the remaining language still would leave the jury with the impression that the value is received only one time ever. Dkt. No. 149 at 8.

Defendants assert that the dispute centers on what it means to receive a timing advance value "once." Dkt. No. 138 at 11. Defendants contend their constructions are consistent with the specification which states "allocating a single timing advance index to the uplink and downlink channels of the mobile station" ('151 Patent at 3:63-64) and the "timing access burst and [timing advance value] are common to all channels allocated to the MS" ('151 Patent at 7:5-7). Defendants assert that the file history similarly states "the present invention is a simplification where one single (and common) timing advance index is allocated for each channel (uplink and downlink) that the [mobile phone] is using." Dkt. No. 138 Ex. 4 at CORE_A3-06769.

As to the use of "multiframes," Defendants argue that this language was used to provide a meaningful measure of what "once" means, and Defendants have no objection to removing this language. Dkt. No. 138 at 11-12.

At the oral hearing, Defendants agreed to Core's proposed construction with a modification. In particular, Defendants agreed to "receive a timing advance value that is shared by both uplink and downlink channels in the uplink direction" if the words "in the uplink direction" were removed. Dkt. No. 200 at 50-51. At the oral hearing, Core agreed to a proposed modification of Core's construction to include "shared by uplink and downlink channels for transmission in the uplink direction." *Id.* at 51-52.

Analysis

The parties do not dispute that a single timing advance value is shared. The only remaining dispute relates to the use of uplink and downlink channels. The Court has resolved

that dispute with regard to Term 18 and adopts a similar construction for Term 20 based upon the same reasoning presented above.

The Court construes "receive a timing advance value once" to mean "receive a timing advance value that is shared by both uplink and downlink channels for data transmission in the uplink direction."

4. "in the allocated base station subsystem reception slots" - Claim 14 (Term 21)

Core Wireless's Construction	Defendants' Construction
The phrase "base station subsystem" should be construed as "a radio access network, which is a system of base station equipment (transceivers, controllers, etc.) which is responsible for communicating with mobile stations in a certain area", otherwise this term has its plain and ordinary meaning and no further construction is necessary.	in the base station reception slots allocated by the base station subsystem The phrase "base station subsystem" should have its plain and ordinary meaning.

The parties dispute whether the term "base station subsystem" should be changed to "radio access network" and whether the slots are allocated by the base station as opposed to the mobile phone.

Positions of the Parties

Core argues that Defendants' construction is confusing and unnecessary, and that only "base station subsystem" (BSS) needs construction. Dkt. No. 123 at 25. Core asserts that BSSs were used in GSM and GPRS systems, the only systems in existence at the time the patent was filed. However, the patent does not describe BSSs, but assumes a reader will understand the term. *Id*. Core explains that its construction is drawn from the then-current 3GPP standard. The main difference between the standard and Core's construction is that Core substitutes "radio access network" for BSS. Dkt. No. 123 at 25, n. 100 (citing extrinsic evidence equating the BSS

with the RAN). According to Core, Defendants' brief makes clear that Defendants are attempting to import network limitations into a claim directed to a mobile station. Dkt. No. 149 at 8. Core asserts that though a person skilled in the art would understand "base station subsystem," a jury might not. *Id*.

Defendants argue that their construction is merely intended to establish one undisputed fact: the reception slots at the base station subsystem (BSS) are allocated by the BSS and not by the mobile phone. Defendants assert that Core's construction confuses this point and does not conform with the plain meaning to one skilled in the art. Dkt. No. 138 at 13. Defendants note that Core admits in its brief, the term "base station subsystem" is readily understood to one skilled in the art as Core states "[the patent] assumes the reader will already understand the context of the term." *Id*. (quoting Dkt. No. 123 at 25).

Analysis

The claim references a base station subsystem. The parties agree that this term had a well understood meaning in the art at the time of filing. Dkt. No. 123 at 25. Core even uses "base station" in its own construction. Defendants have not pointed to language of exclusion in the specification limiting the term to GSM and GPRS. Further, Defendants have not advocated such a position. Thus, the Court finds that the term is not limited to GSM and GPRS systems.

As to Defendants' position that "reception slots at the base station subsystem (BSS) are allocated by the BSS," Core asserts Defendants' construction injects a limitation into the claim requiring the base station operation of allocating slots. Core raises valid concerns. The claim language itself does not mandate this requirement. Defendants have not pointed to anything in the intrinsic record requiring base station operation to be included in the disputed limitation. The surrounding claim language states "the mobile station being configured to…advance value so

that transmitted data is received at the base station subsystem in the allocated base station subsystem reception slots." This language makes clear that this aspect of the claim is directed to the configuration or capability of the mobile station, not the operation of the base station. Further, the claim language does not mandate that the base station itself perform the allocation, only that they are "allocated" somehow. Having resolved this issue, no construction is necessary.

The Court finds that "in the allocated base station subsystem reception slots" has its plain and ordinary meaning and that no further construction is required.

V. '828 Patent

1. "said at least one quality of service parameter" - Claims 16, 20, 25 (Term 25)

Core Wireless's Construction	Defendants' Construction
Plain and ordinary meaning / no construction necessary.	Indefinite

Defendants assert that this claim term lacks antecedent basis because prior references to "quality of service parameters" reference "as least one requested quality of service parameter."

Positions of the Parties

Core notes that a certificate of correction was filed to remove "requested" from the last usage of "quality of service parameter" in claims 16, 20 and 25. However, Core asserts that the removal of "requested" does not make the claim indefinite because the change was made during prosecution to be consistent with the actual claim language as the claim stood at the time of the final notice of allowance. Therefore, Core contends that removal of "requested" has no effect on the claim. Core asserts that the Patent Office understood the term when it accepted the certificate. Moreover, Core asserts that when viewed in light of the specification, the claims

inform those skilled in the art the scope of the invention because the "at least one quality of service parameters" comes from the parameters explicitly defined in the specification:

> The concept of Quality of Service or QoS has been previously introduced to describe various kinds of service requirements or bearer capabilities in terms of a number of parameters. Typical QoS parameters include but are not limited to mean delay, maximum delay, service precedence, bearer class, mean bitrate, maximum bitrate, minimum bitrate and so on.

'828 Patent 3:22-28. Core argues that the claim is clear that "said at least one quality of service parameter" refers to the "at least one requested quality of service parameter" recited earlier in the claim. Dkt. No. 149 at 9.

Defendants point out that, before the certificate of correction, the claims referred to "at least one requested quality of service parameter" and then referred back to that same term twice as "said at least one requested quality of service parameter." The certificate of correction was filed to remove "requested" from the third usage in each of claims 16, 20 and 25 of "said at least one requested quality of service parameter." Dkt. No. 138 at 28. Defendants therefore assert that, as the claims now stand, the last usage - "said at least one quality of service parameter" lacks antecedent basis. Defendants assert that the claims are unclear as to whether this quality of service parameter is the prior recited quality of service parameter or a new one. *Id*. LG argues that under *Nautilus*, the claims are not reasonably certain.

At the oral hearing, Defendants initially contended that the certificate of correction created confusion because the certificate did not conform to the allowed claims, thus leading to Defendants' indefiniteness assertion. Dkt. No. 200 at 64-65.

Analysis

After clarification, the parties all agreed that, as the claims stood in prosecution immediately before issuance, the third recitation of "quality of service parameters" did not

include "requested." Though the phrase in question may have changed in various iterations of the claims during prosecution, it is clear that the certificate of correction resulted in the issued claims conforming to the wording of the the claims at the time of the last allowance. In light of these facts, the certificate of correction did not inject confusion into the claims.

On the face of the claims, the last reference to "said at least one quality of service parameter" is reasonably certain to be a reference to the prior recited "at least one requested quality of service parameter." As structured, the claims recite a claim element of "communicate" or "transmitter" or "sending" (varying by claim) with respect to the first two uses of the quality of service parameters and these elements state "said at least one requested quality of service parameter to be used for selecting a channel coding scheme." '828 Patent Claims 16, 20 and 25. The claims next recite a claim element reciting "receive" or "receiver" or "receiving" (varying by claim) a channel coding scheme "corresponding" to "said at least one quality of service parameter." In this context, there is no doubt that the "corresponding" to "said at least one quality of service parameter" refers to the earlier recited "requested quality of service parameters." This also matches the disclosure of the specification. '828 Patent 2:55-3:6, 3:7-3:21, 3:40-59, 4:39-5:50, 5:58-65, 6:7-10, 6:35-7:15, Figure 2. The specification does not reference the use of a different quality of service parameter for the receiving step. In the context of the claim language itself and the specification, the claim is reasonably certain. *See Energizer Holdings Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1371 (Fed. Cir. 2006) (holding that "an anode gel comprised of zinc as the active anode component" provided implicit antecedent basis for "said zinc anode").

The Court finds that the term "said at least one quality of service parameter" has its plain and ordinary meaning and no further construction is necessary.

CONCLUSION

The Court adopts the above constructions set forth in this opinion for the agreed and disputed terms of the Asserted Patents. The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

SIGNED this 4th day of November, 2015.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE